INDEX

ATP, effect of on luminescence of millipede extracts, 120.
Abbott, D. P. *See* J. H. Phillips, Jr., 296.
Abstracts of papers presented at the M. B. L., 316.
Acclimatization of crabs, 268.
Acetylcholine, effect of on scorpion heart-beat, 135.
Acorn barnacle, body and shell growth in, 224.
Acrasiae, encystment in member of, 58.
Actin, bound nucleotide of, 333.
Action of ovarian extracts on mitosis, 129.
Activity, correlation of with barometric pressure, 112.
Activity of fiddler crabs as affected by temperature, 245.
Activity of Pachygrapsus, in relation to time of day and tidal phase, 268.
Activity rhythm in salamander, 188.
Adaptive significance of activity rhythm in salamander, 188.
Adaptive significance of osmoregulation in crab, 268.
Adenosine triphosphate, effect of on luminescence of millipede extracts, 120.
Adrenaline, effect of on scorpion heart-beat, 135.
Aging in relation to terminal growth in Campanularia, 233.
Aiello, E. Energy metabolism and ciliary activity of Mytilus gill, 335.
Aiello, E. The influence of the branchial nerves and of 5-hydroxytryptamine on the ciliary activity of Mytilus gill, 325.
Albino snails, starvation and desiccation of, 89.
Alga, correlation of oxygen consumption of, with barometric pressure, 112.
Algae, freezing and drying in, 275.
Alkaline phosphatase activity in spiny lobster exoskeleton, 451.
Allen, M. J. Breeding of polychaetous annelids near Parguera, 49.
Allocreadium, life-history of, 302.
Amino acids, effects of on perfused lobster heart, 345.
Amino acids, uptake of by ciliary-mucoid filter-feeders, 356.
Amphibian, activity rhythm in, 188.
Amphibian, correlation of oxygen consumption of, with barometric pressure, 112.
Amphibian gastrulae, phosphorus balance of, 376.
Amphibian tadpole, phenylthiourea treatment of, 160.
Anaerobiosis in Rana gastrulae, 382.
Analyses of Ciona blastomeres, 365.
Anatomy of Allocreadium, 302.
Anatomy of Azygia, 488.
Anatomy of Nereis nephridium, 407.
Anemones, sea, nematocyst toxin of, 296.
Annelid, morphology of nephridium of, 407.
Annelid eggs, effects of nitrogen mustards on, 388.
Annelid eggs, effects of ovarian extracts on, 129.
Annelids, commensal, behavior of, 397.
Annelids, endoparasitic, 170.
Annelids, polychaete, breeding habits of, 49.
Annual Report of the M. B. L., 1.
Antimitotic action of ovarian extracts, 129, 318.
Antitoxic response to nematocyst toxin, 296.
Anuran, phenylthiourea treatment of, 160.
Anuria in lobsters, 207.
Apyrase activity of Ciona blastomeres, 365.
Arabellidae, endoparasites of, 170.
Arctic Fucus, oxygen consumption of, 275.
Arctonoë as commensal, 397.
Armstrong, P. B. Motility in developing teleost embryos, 325.
Arrested gastrulae, phosphorus balance of, 376.
Artemia as food for Campanularia, 233.
Arthropod, body and shell growth in, 224.
Arthropod, cardiac physiology of, 135.
Arthropod, excretion in, 207.
Arthropod, luminescence of, 120.
Arthropod, molting cycle of, 451.
Arthropod, osmoregulation in, 268.
Arthropod, respiratory metabolism of, 245.
Arthropod, sound production in, 286.
Arthropod cuticle, structure of, 141.
Ascidian blastomeres, chemical analyses of, 365.
Ascophyllum, freezing and drying in, 275.
Ashton, F. T. Magnetic studies on cells and protoplasm, 319.
Ashton, F. T. *See* L. V. Heilbrunn, 318.
Assay of Metridium nematocyst toxin, 296.
Atropine, effect of on scorpion heart-beat, 135.
Auclair, W. *See* D. Marsland, 348.

Australorbis, starvation and desiccation of, 89.
Autolytus, breeding habits of, 49.
Autoradiograms of Hyla tadpoles, 160.
Azide, sodium, effects of on Rana gastrulae, 382.
Azygia, life-cycle and morphology of, 488.

BACHMURSKI, D. *See* J. S. ROTH, 332.
Balanus, body and shell growth in, 224.
BANG, F. B. Reaction to injury in the oyster, 335.
BANG, F. B. *See* A. WARWICK, 334.
Barnacle, body and shell growth in, 224.
Barometric pressure as correlated with biological activity, 112.
Behavior of commensal polychaetes, 397.
Behavior of spiny lobsters, 286.
Behavioral mechanism for osmotic regulation in crab, 268.
BENNETT, M. V. L., S. M. CRAIN and H. GRUNDFEST. Patterns of response and neural organization of supramedullary neurons of Spheroides, 325.
BENNETT, M. V. L. *See* S. M. CRAIN, 342.
BERG, W. E. Chemical analyses of anterior and posterior blastomeres of Ciona, 365.
Binding of radioactive iodine by tadpoles, 160.
Biological activity, correlation of with barometric pressure, 112.
Bioluminescence in millipedes, 120.
Birds, testicular growth in, 254.
Bladder, urinary, of lobster, 207.
BLASKOVICS, J. C., AND K. B. RAPER. Encystment stages of Dictyostelium, 58.
Blastomeres, Ciona, chemical analyses of, 365.
Blood, crab, sodium and potassium concentrations in, 268.
Blood analyses of lobster, 207.
Blood of Uca, hormone level of, 426.
BLOOMFIELD, D. K. *See* A. LAZAROW, 414.
BLUNT, SISTER M. X. *See* E. P. ODUM, 323.
Body growth in Balanus, 224.
Body weight of snails, 89.
BOOKHOUT, C. G. *See* J. D. COSTLOW, JR., 224.
VON BRAND, T., P. MCMAHON AND M. O. NOLAN. Physiological observations on starvation and desiccation of the snail Australorbis, 89.
Breeding habits of polychaetes, 49.
BRIDGMAN, J. Lethal irradiation of Tillina in its active and encysted states, 336.
Brine shrimp as food for Campanularia, 233.
Bromsulfalein, effect of on lobster excretion, 207.
BROWN, F. A., JR., J. SHRINER AND H. M. WEBB. Similarities between daily fluctuations in background radiation and oxygen consumption in the living organism, 103.
BROWN, F. A., JR., H. M. WEBB AND E. J. MACEY. Lag-lead correlations of barometric pressure and biological activity, 112.
BRYANT, S. H. Accessory fiber synaptic excitation of squid stellar axons, 359.
BUCK, J. *See* J. F. CASE, 337.
BÜCKMANN, D. A morphological color change controlled by molting hormone in Lepidoptera, 326.
Buffer action, effect of on fish islet tissue metabolism, 414.
Bugs, cuticle of, 141.
BURGEN, A. S. V., AND S. W. KUFFLER. The inhibition of the cardiac ganglion of Limulus by 5-hydroxytryptamine, 336.
BURGEN, A. S. V. *See* C. R. ELIOT, 344; P. E. S. ENGER, 345.
BURGER, J. W. The general form of excretion in the lobster, Homarus, 207.

CADDIS flies as hosts of Allocreadium, 302.
CAGLE, J. *See* A. K. PARPART, 331.
Calcareous plates of barnacles, 224.
Calcification of spiny lobster exoskeleton, 451.
Calcium, effect of on lobster excretion, 207.
Calcium, effect of on metabolism of fish islet tissue, 414.
Calcium, role of in electrical responses of frog muscle, 329.
Calcium, role of in hardening of spiny lobster exoskeleton, 451.
Calcium-45, metabolism of by Lebistes, 442.
Calorimetric measurements of algae, 275.
Campanularia, terminal growth in, 233.
CAMPBELL, M. A. Larval development of Streblospio, 336.
Cancer, ovarian extracts in treatment of, 129.
Cancer chemotherapy, 388.
CANTOR, M. H. *See* C. L. CLAFF, 326; F. N. SUDAK, 357.
Carcinostatic action of ovarian extracts, 129.
Cardiac physiology of fish, 359.
Cardiac physiology of scorpion, 135.
Caribbean annelids, breeding habits of, 49.
CARLSON, F. D., AND A. SIGER. The dependence of creatine phosphate and ATP breakdown on work in iodoacetate-poisoned muscles, 324.
Cartesian diver, use of in study of fish islet tissue, 414.
CASE, J. F., AND J. BUCK. Electrical stimulation of light emission in fireflies, 337.

Case, J. F., C. Edwards, R. Gesteland and D. Ottoson. The site of origin of the nerve impulse in the lobster stretch receptor, 360.
Cather, J. N. *See* A. C. Clement, 340.
Cell division, effects of nitrogen mustards on, 129, 388.
Cell division, effects of ovarian extracts on, 129.
Cellular particulates, irradiation of, 198.
Centrifugation, differential, of Uca sinus gland granules, 426.
Centrifuged Arbacia eggs, premature furrowing in, 348.
Centrifuged Nereis egg, cortical response of, 341.
Ceratonereis, breeding habits of, 49.
Cercaria of Allocreadium, 302.
Cercaria of Azygia, 488.
Cerf, J., H. Grundfest, G. Hoyle and F. V. McCann. The nature of electrical responses of doubly-innervated insect muscle fibers, 337.
Cerf, J., H. Grundfest, G. Hoyle and F. V. McCann. Neuromuscular transmission in the grasshopper Romalea, 338.
Chaet, A. B., and W. R. Clark, Jr. The demonstration of histamine in heparin-containing invertebrate cells, 339.
Chaetacanthus, breeding habits of, 49.
Chaetopterus eggs, effects of nitrogen mustards on, 388.
Chaetopterus eggs, effects of ovarian extracts on, 129.
Chamberlain, N. A. Larval development of the mud crab Neopanope, 338.
Chase, A. M. Uricase inactivation by urea, 320.
Chase, A. M. *See* E. N. Harvey, 347.
Chemical agents, effects of on sand dollar development, 480.
Chemical analyses of Ciona blastomeres, 365.
Chemotherapy of cancer, 388.
Cheney, R. H. Dioxypurine derivatives as mitotic and growth inhibitors, 339.
Cheney, R. H. Fertilizability of Arbacia eggs after pretreatment in trimethylated xanthine derivatives, 339.
Chloride regulation in lobster, 207.
Chondrus, freezing and drying in, 275.
Chromatography of Metridium nematocyst toxin, 296.
Chromatophorotropic hormones in Uca, 426.
Chromosome-cytoplasm interactions in development of Sciara, 323.
Ciliary activity of Mytilus gill, 325.
Ciona blastomeres, chemical analyses of, 365.
Citric acid, role of in calcification of lobster integument, 451.
Claff, C. L., F. N. Sudak and M. H. Cantor. Further studies in experimental hypothermia, 326.
Claff, C. L. *See* F. N. Sudak, 357.
Clam, correlation of oxygen consumption of, with barometric pressure, 112.
Clark, G. M. *See* A. M. Elliott, 344, 345.
Clark, W. R., Jr. *See* A. B. Chaet, 339.
Cleavage-accelerating factor in Arbacia ovary homogenates, 350.
Cleavage of Chaetopterus eggs, effects of ethyl urethane on, 354.
Cleavage of Chaetopterus eggs, effects of nitrogen mustards on, 388.
Cleavage products, Ciona, chemical analyses of, 365.
Cleavage-retarding factor in Arbacia ovary homogenates, 351.
Clement, A. C., and J. N. Cather. A technic for preparing whole mounts of veliger larvae, 340.
Clotting of blood, 320.
Clowes, G. H. A. *See* R. K. Crane, 342, 343.
Cobalt-60 irradiation of rat liver mitochondria, 198.
Cobaltous chloride, effects of on sand dollar development, 480.
Coelenterate, adaptation to salinity and temperature in, 330.
Coelenterate, nematocyst toxin of, 296.
Coelenterate, terminal growth in, 233.
Cold, effects of on intertidal algae, 275.
Cold, effects of on metabolism of fiddler crabs, 245.
Cold-treatment of rats, 326.
Collier, J. R. The aminopeptidase and catheptic activity of the egg of Ilyanassa, 340.
Colonial hydroid, growth in, 233.
Colwin, A. L., and L. H. Colwin. Egg membrane lysis by a sperm extract in Hydroides, 341.
Colwin, L. H., and A. L. Colwin. Lytic and other activities of the individual sperm during the early events of sperm entry, 316.
Colwin, L. H., and A. L. Colwin. Observations of sperm entry during re-fertilization in Saccoglossus, 341.
Commensal polychaetes, behavior of, 397.
Comparative study of mealy bug cuticle, 141.
Cooling of muscle, effect of ions on, 328.
Cooperstein, S. J. *See* A. Lazarow, 347, 414.
Correlations in barometric pressure and biological activity, 112.
Cortical cytoplasm of oocytes, 316.

Cortical response of Nereis egg, 341.
Cosmic radiation, similarities between oxygen consumption fluctuations of potato and, 103.
COSTELLO, D. P. The cortical response of the Nereis ovum to activation after centrifuging, 341.
COSTLOW, J. D., JR., AND C. G. BOOKHOUT. Body growth versus shell growth in Balanus, 224.
Crab, fiddler, hormone-containing granules in, 426.
Crab, fiddler, respiratory metabolism of, 245.
Crab, osmoregulation in, 268.
CRAIN, S. M., M. V. L. BENNETT AND H. GRUNDFEST. Electrical activity of supramedullary neurons of Spheroides, 342.
CRAIN, S. M. *See* M. V. L. BENNETT, 325.
CRANE, R. K., H. H. HIATT AND G. H. A. CLOWES. The inhibition by a series of nitro- and halophenols of glucose-6-phosphate dehydrogenase from Arbacia eggs and yeast, 342.
CRANE, R. K., A. K. KELTCH, C. P. WALTERS AND G. H. A. CLOWES. Preliminary studies on the incorporation of glucose-U-C^{14} into the polysaccharides of Arbacia and Mactra larvae and its inhibition by 4,6-dinitro-o-cresol, 343.
Crassostrea, correlation of oxygen consumption of, with barometric pressure, 112.
CROWELL, S., AND C. WYTTENBACH. Factors affecting terminal growth in the hydroid Campanularia, 233.
Crustacean, correlation of oxygen consumption of, with barometric pressure, 112.
Crustacean, excretion in, 207.
Crustacean, hormone-containing granules of, 426.
Crustacean, molting cycle of, 451.
Crustacean, osmoregulation in, 268.
Crustacean, respiratory metabolism of, 245.
Crustacean, sound production in, 286.
CSAPO, A. *See* R. P. KERNAN, 329; H. MASHIMA, 349.
CUSHING, J. E. Tissue transplantation in Pecten, 327.
CUSHING, J. E., G. J. RIDGWAY AND G. L. DURALL. The preservation of intact erythrocytes of marine vertebrates for blood group research, 343.
Cuticle of mealy bugs, 141.
Cycle, molting, of spiny lobster, 451.
Cycles of oxygen consumption in potato, 103.
Cyclic changes in integument of spiny lobster, 451.
Cystocercous cercariae of Azygia, 488.
Cytochrome oxidase, sensitivity of to gamma irradiation, 198.
Cytoplasmic segregation in Ciona, 365.

DAILY fluctuations in background radiation and oxygen consumption in potatoes, 103.
Darkness, effect of on activity of salamander, 188.
DAVENPORT, D. *See* J. W. HASTINGS, 120; J. F. HICKOCK, 397.
DAVIDSON, E. *See* L. V. Heilbrunn, 129.
DAVIS, B. D. *See* A. L. NAGLER, 331.
Day-length in relation to testicular growth in sparrow, 254.
Dehydration in snails, 89.
DÉMEUSY, N. Respiratory metabolism of fiddler crabs from two different latitudinal populations, 245.
Dendraster, developmental modifications in, 480.
DENT, J. N. *See* W. G. LYNN, 160.
Deoxycholate, effect of on respiration of homogenized frog embryos, 382.
Desiccation of crabs, 268.
Desiccation of intertidal algae, 275.
Desiccation of snail, 89.
Detergents, effects of on hormone-containing granules of Uca, 426.
Developing frog embryos, respiration of, 382.
Development of Arbacia, effect of fluoride on, 346.
Development of Campanularia, 233.
Development of Ciona, 365.
Development of Neopanope, 338.
Development of phenylthiourea-treated tadpoles, 160.
Development of polychaetes, 49.
Development of Sciara, chromosome-cytoplasm interrelations in, 323.
Developmental inhibitors, effects of on Rana gastrulae, 376, 382.
Developmental modifications of sand dollar, 480.
Diadora commensals, 397.
Diatoms, ecology of, 351.
Dictyostelium, encystment in, 58.
Differential growth in barnacles, 224.
Digitonin, effects of on hormone-containing granules of Uca, 426.
Dinitrophenol, effects of on frog gastrulae, 376.
Diopatra, endoparasites of, 170.
Dissociated sponge cells, reaggregation of, 356.
Dissociation of sponge cells, 355, 356.
Distribution of endoparasitic annelids, 170.
Diurnal activity rhythm in salamander, 188.

Diver, cartesian, use of in study of fish islet tissue, 414.
Dose-inactivation curve for irradiated rat liver mitochondria, 198.
Douglas, S. D. *See* M. C. Niu, 352.
Drilonereis, morphology of, 170.
Drugs, effects of on scorpion heart-beat, 135.
Drying in intertidal algae, 275.
Durall, G. L. *See* J. E. Cushing, 343.
Dyes, distribution of during lobster excretion, 207.

Ecdysis of barnacles, 224.
Echinoderm, developmental modifications in, 480.
Echiuroids, endoparasites of, 170.
Ecology of algae, 323.
Ecology of crabs, in relation to salinity, 268.
Ecology of diatoms, 351.
Ecology of hydroid, 330.
Ecology of intertidal algae, 275.
Ecology of marine commensals, 397.
Ectodermization of sand dollar embryos, 480.
Edwards, C. *See* J. F. Case, 360.
Effects of developmental inhibitors on Rana gastrulae, 376.
Egg, cortical response of after centrifuging, 341.
Egg, Ilyanassa, enzymes of, 340.
Egg membrane lysis by sperm extract, 341.
Eggs, Chaetopterus, effects of nitrogen mustards on division of, 388.
Eggs, Spisula, vital staining of, 353.
Electrical activity of supramedullary neurons of Spheroides, 342.
Electrical inexcitability of neuron soma, 317.
Electrical recording in the living squid, 333.
Electrical responses of doubly-innervated insect muscle fibers, 337.
Electrical stimulation of firefly light emission, 337.
Electrolyte constituents of lobster blood, 207.
Electrolytes, effects of on respiration of fish islet tissue, 414.
Electron microscopy of Chlamydomonas, 346.
Electron microscopy of Fundulus oocytes, 329.
Electron microscopy of sea urchin egg cytoplasm, 327.
Electron microscopy of Spisula egg, 353.
Eliot, C. R., A. Kaji, P. Seeman, E. Ubell, S. W. Kuffler and A. S. V. Burgen. The effect of nervous system extracts on inhibition and excitation in single nerve cells, 344.
Elliott, A. M., and G. M. Clark. The mating type system in variety nine of Tetrahymena, 344.
Elliott, A. M., and G. M. Clark. Post x-radiation effects of temperature on vegetative cells of Tetrahymena, 345.
Elliott, A. M., and G. M. Clark. X-radiation effects during conjugation of Tetrahymena, 345.
Embryological modifications in sand dollar, 480.
Embryos, effect of ribonucleic acid on, 352.
Embryos, frog, phosphorus balance of, 376.
Embryos, frog, respiration of, 382.
Embryos, teleost, motility in, 325.
Embryology of Ciona, 365.
Encystment stages of Dictyostelium, 58.
Endocytes of Dictyostelium, 58.
Endogenous oxygen uptake of fish, 414.
Endoparasites of arabellids, 170.
Energetics of amphibian development, 376.
Enger, P. E. S., and A. S. V. Burgen. The effects of some amino acids on the perfused lobster heart, 345.
Engle, R. L., Jr., and K. R. Woods. Phylogenesis of plasma proteins and plasma cells. II., 363.
Engle, R. L., Jr. *See* K. R. Woods, 362.
Enteromorpha, desiccation in, 275.
Entodermization of sand dollar embryos, 480.
Environment, role of in testicular growth in sparrows, 254.
Enzyme activity of Ciona blastomeres, 365.
Enzyme studies on irradiated rat liver, 198.
Enzymes (glucuronidase and sulfatase) of molluscs, 334.
Epicoccus, cuticle of, 141.
Erythrocytes of marine vertebrates, preservation of, 343.
Escherichia, changes in nucleic acids in, 321.
Escherichia, genetic block in metabolism in, 331.
Eunice, breeding habits of, 49.
Eunice, endoparasites of, 170.
Eupolymnia, breeding habits of, 49.
Eurothoë, breeding habits of, 49.
Evasterias as host for polychaete commensal, 397.
Excitation, synaptic, of squid stellar ganglion, 359.
Excretion in lobster, 207.
Exogastrulation in echinoderm embryos, 480.
Exogenous urea, loss of through lobster gills, 207.
Extracts, ovarian, antimitotic action of, 129, 318.
Exuviae of barnacles, 224.
Eye pigmentation in phenylthiourea-treated tadpoles, 160.

FACTORS affecting growth in Campanularia, 233.
Facultative commensals, 397.
FARNER, D. S., AND A. C. WILSON. A quantitative examination of testicular growth in the white-crowned sparrow, 254.
FELDHERR, C. The metachromatic reaction in various types of protoplasm, 319.
FELDHERR, C. *See* L. V. HEILBRUNN, 318.
Female mealy bugs, cuticle of, 141.
FERGUSON, S. A. *See* T. R. Tosteson, 318.
Fertilizability of Arbacia eggs after treatment with xanthine derivatives, 339.
Fibrinogen, irradiated, electrophoretic mobility of, 319.
Fiddler crab, correlation of oxygen consumption of with barometric pressure, 112.
Fiddler crab, hormone-containing granules of, 426.
Fiddler crab, respiratory metabolism of, 245.
FINE, A. *See* P. PERSON, 331.
Fish, metabolism of strontium-90 and calcium-45 by, 442.
Fish, studies on isolated islet tissue of, 414.
Fish as hosts for Azygia, 488.
Flatworm, life-history of, 488.
Flatworm, parasitic, life-history of, 302.
Florida fiddler crabs, metabolism of, 245.
Fluke, life-history of, 302.
Fluorescence of millipede extracts, 120.
Fluoride, effect of on Arbacia development, 346.
Food, relation of to growth in Campanularia, 233.
Freezing and drying in intertidal algae, 275.
FREYGANG, W. H., JR. Evidence for electrical inexcitability of neuron soma, 317.
FRIZ, C. T. *See* A. LAZAROW, 414.
Frog embryos, homogenized, respiration of, 382.
Frog gastrulae, phosphorus balance of, 376.
Frog tadpoles, phenylthiourea treatment of, 160.
Fucus, correlation of oxygen consumption of, with barometric pressure, 112.
Fucus, freezing and drying in, 275.

GALL, J. G. Thymidine incorporation into the macronucleus of Euplotes, 322.
Gamma irradiation of cellular particulates, 198.
Ganglion, cardiac, of Limulus, inhibition of, 336.
Gastropods as hosts of polychaete commensals, 397.
Gastrulae, amphibian, phosphorus balance of, 376.
Gastrulation of Chaetopterus embryos, effect of sugars on, 332.
Gelation changes, effects of ovarian extracts on, 129.
Genetic analysis of Mormoniella, 335.
GESTELAND, R. *See* J. F. CASE, 360.
GIBBS, S. P., D. E. PHILPOTT AND R. A. LEWIN. Electron microscope studies of the flagella of Chlamydomonas, 346.
Glucose, effects of on lobster excretion, 207.
Glucose utilization by Arbacia and Mactra larvae, 343.
Glycera, breeding habits of, 49.
Glycogen accumulation in spiny lobster exoskeleton, 451.
Glycoprotein, role of in spiny lobster ecdysis, 451.
Granules, hormone-containing, in Uca, 426.
GREENBERG, S. S., AND A. GREENBERG. Effect of sodium fluoride on the development of Arbacia, 346.
GREGG, J. R., AND M. KAHLBROCK. The effects of some developmental inhibitors on the phosphorus balance of amphibian gastrulae, 376.
GREGG, J. R., AND F. L. RAY. Respiration of homogenized embryos: Rana pipiens and Rana pipiens ♀ X Rana sylvatica ♂, 382.
GREIF, R. L. Uptake of Chlormerodrin by Phascolosoma nephridia, 327.
GROSS, P. R., S. NASS AND W. PEARL. Mechanisms of sol-gel transformations in the cytoplasm, 320.
GROSS, P. R., D. E. PHILPOTT AND S. NASS. Electron microscope observations on the cytoplasm of sea urchin eggs, 327.
GROSS, W. J. A behavioral mechanism for osmotic regulation in a semi-terrestrial crab, 268.
Growth, terminal, in Campanularia, 233.
Growth of body and shell in Balanus, 224.
Growth of testes in sparrow, 254.
GRUNDFEST, H. *See* M. V. L. BENNETT, 325; J. CERF, 337, 338; S. M. CRAIN, 342.
Guppy, metabolism of strontium-90 and calcium-45 by, 442.
GUTTMAN, R., AND S. ROSS. The effect of ions on the response of smooth muscle to cooling, 328.

"HADDOW paradox," 388.
Haemolymph pressure of scorpion, 135.
HARDIMAN, C. W. Stimulation of the taste receptors of the rat with organic salts, 347.

HARVEY, E. N., A. M. CHASE AND W. D. MCELROY. The spectral energy curve of Cypridina and other luminous organisms, 347.
HASTINGS, J. W., AND D. DAVENPORT. The luminescence of the millipede, Luminodesmus, 120.
Heart-beat of scorpion, 135.
Heart-beat of snail, 89.
HEILBRUNN, L. V., AND W. L. WILSON. A rational approach to the problem of cancer chemotherapy, 388.
HEILBRUNN, L. V., F. T. ASHTON, C. FELDHERR AND W. L. WILSON. The action of insulin on living cells, 318.
HEILBRUNN, L. V., W. L. WILSON, T. R. TOSTESON, E. DAVIDSON AND R. J. RUTMAN. The antimitotic and carcinostatic action of ovarian extracts, 129.
HEILBRUNN, L. V. *See* T. R. TOSTESON, 318.
HEILMAN, R. S. *See* V. MENKIN, 350, 351.
Heme synthesis in marine fishes, 361.
Hemerythrin, incorporation of labelled iron into, 361.
Hemoglobin, vertebrate, effect of on lobster excretion, 207.
Hepatopancreas of spiny lobster during ecdysis, 451.
Hermodice, breeding habits of, 49.
Hesionid polychaete, commensalism of, 397.
Hexosamine content of Metridium nematocyst toxin, 296.
HIATT, H. H. *See* R. K. CRANE, 342.
HIBBARD, E. *See* N. E. KEMP, 329.
HICKOK, J. F., AND D. DAVENPORT. Further studies in the behavior of commensal polychaetes, 397.
Histamine, effect of on scorpion heart-beat, 135.
Histamine in invertebrate cells, 339.
Histochemistry of lobster molting cycle, 451.
Histochemistry of mealy bug cuticle, 141.
Histological changes in lobster hepatopancreas during molting, 451.
Histology of Nereis nephridium, 407.
Histology of phenylthiourea-treated tadpole thyroids, 160.
Histology of spiny lobster stridulatory membrane, 286.
Homarus, excretion in, 207.
Homogenized frog embryos, respiration of, 382.
Homopteran, cuticle of, 141.
Hormone-containing granules of Uca, 426.
Hormone control of color change in Lepidoptera, 326.
Hormones, plant, effects of on Ulva, 321.
Host-commensal relations, 397.
HOYLE, G. Coupling of membrane potential to contraction in muscle, 317.
HOYLE, G. Neuromuscular transmission in Limulus, 347.
HOYLE, G. *See* J. CERF, 337, 338.
Humidity, role of in metabolism of snail, 89.
Hyaline layer of Arbacia egg, contractility of, 331.
Hybrid frog embryos, respiration of, 382.
Hybrid frog gastrulae, phosphorus balance of, 376.
Hydration in snails, 89.
Hydrocaulus, growth of in Campanularia, 233.
Hydroid, terminal growth in, 233.
Hydroxy-indoles in Metridium nematocyst toxin, 296.
Hyla tadpoles, phenylthiourea treatment of, 160.
Hypothermia in rats, 326.

IMMUNITY in relation to nematocyst toxin, 296.
Indian scorpion, cardiac physiology of, 135.
Influence of lunar frequency on activity rhythm of Plethodon, 188.
Inhibitors, developmental, effects of on Rana gastrulae, 376.
Insect, cuticle of, 141.
Insulin, effect of on Chaos, 318.
Integumental tissue of spiny lobster during ecdysis, 451.
Intertidal algae, freezing and drying in, 275.
Intertidal crab, salinity preferences of, 268.
Intestinal absorption of fish, 362.
Inulin, effect of on lobster excretion, 207.
Iodine, radioactive, binding of in tadpoles, 160.
Irradiation of cellular particulates, 198.
Isolation of Metridium nematocyst toxin, 296.
Islet tissue of fish, 414.
Isotope treatment of Hyla tadpoles, 160.
Isotopes, metabolism of by Lebistes, 442.

JONES, M. L. On the morphology of the nephridium of Nereis vexillosa, 407.

KAHLBROCK, M. *See* J. R. GREGG, 376.
KAJI, A. *See* C. R. ELIOT, 344.
KANUNGO, M. S. Cardiac physiology of the scorpion Palamnaeus, 135.
KANWISHER, J. Freezing and drying in intertidal algae, 275.
KELTCH, A. K. *See* R. K. CRANE, 343.
KEMP, N. E. Differentiation of cortical cytoplasm and extra-cellular membranes of oocytes, including changes at fertilization, 316.

KEMP, N. E., AND E. HIBBARD. Protoplasmic bridges between follicle cells and developing oocytes of Fundulus, 329.
KERNAN, R. P., AND A. CSAPO. An effect of calcium-deficient Ringer on intact frog muscle, 329.
KERNAN, R. P., AND A. CSAPO. Potassium contracture in frog twitch muscles, 329.
Key to species of endoparasitic annelids, 170.
Key to species of North American Azygia, 488.
KINNE, O. Adaptation to salinity and temperature in a euryhaline hydroid, 330.
KUENZLER, E. J. *See* E. P. ODUM, 323.
KUFFLER, S. W. *See* A. S. V. BURGEN, 336; C. R. ELIOT, 344.

LAG-lead correlations in barometric pressure and biological activity, 112.
LAMB, G. A. *See* M. P. SCHULMAN, 361.
Larvae, frog, phenylthiourea-treatment of, 160.
Larvae, Ilyanassa, method for preparing whole-mounts of, 340.
Larval development of mud crab Neopanope, 338.
Larval development of Streblospio, 336.
Latitudinally-different populations of fiddler crabs, 245.
LAZAROW, A., AND S. J. COOPERSTEIN. Comparative distribution of radioactive alloxan, thiocyanate, and urea in islet and other toadfish tissues, 348.
LAZAROW, A., S. J. COOPERSTEIN, D. K. BLOOMFIELD AND C. T. FRIZ. Studies on the isolated islet tissue of fish. II., 414.
Lebistes, metabolism of strontium-90 and calcium-45 by, 442.
LEWIN, R. A. *See* S. P. GIBBS, 346.
Life-cycle of Azygia, 488.
Life-cycle of slime mold, 58.
Life-history of Allocreadium, 302.
Light, effect of on activity of salamander, 188.
Light, emission of by millipede, 120.
Light, role of in testicular growth in sparrow, 254.
Limitation of growth in Campanularia, 233.
Limnéphilus, as host for Allocreadium, 302.
Lipoids in mealy bug cuticle, 141.
Littorina, susceptibility of to Metridium nematocyst toxin, 296.
Liver, rat, effects of gamma irradiation on mitochondria of, 198.
Lobster, excretion in, 207.
Lobster, spiny, molting cycle in, 451.
Lobster, spiny, sound production in, 286.
Locomotor activity rhythm in salamander, 188.
LORAND, L. Clotting of blood: A study in the polymerization of proteins, 320.
LORAND, L. Phosphoarginine and arginine phosphopkinase from Homarus, 360.
LORAND, L., J. MOLNAR AND C. MOOS. Biochemical studies of relaxation in glycerinated muscle, 323.
LORAND, L. *See* C. MOOS, 330.
LORING, J. *See* C. A. VILLEE, 358.
Low temperature, effect of on intertidal algae, 275.
Low temperature, effect of on metabolism of fiddler crabs, 245.
LOWER, H. F. A comparative study of the cuticular structure of three female mealy bugs, 141.
Luidia as host for polychaete commensals, 397.
Luminescence of millipede, 120.
Luminous organisms, spectral energy curve of, 347.
Lunar-day fluctuations in cosmic radiation, 103.
Lunar influence on activity rhythm of salamander, 188.
LYNN, W. G., AND J. N. DENT. Phenylthiourea treatment and binding of radioactive iodine in the tadpole, 160.
Lysidice, breeding habits of, 49.

MACEY, E. J. *See* F. A. BROWN, JR., 112.
Magnesium, effect of on lobster excretion, 207.
Magnetic studies on cells and protoplasm, 319.
Malignant tumors, chemotherapy of, 388.
Mammalian ovary extracts, effects of on cell division, 129.
Mandibles of barnacles, 224.
Mantle cavity of barnacle, 224.
Marine eggs, effects of nitrogen mustard on division of, 388.
Marine eggs, effects of ovarian extracts on division of, 129.
Marine fish, studies on isolated islet tissue of, 414.
Marine organisms, sound production in, 286.
MARSLAND, D., AND W. AUCLAIR. A further study on the induced furrowing reaction in Arbacia, 348.
MASHIMA, H., AND A. CSAPO. Shortening of potassium depolarized muscle in different electric fields, 349.
MASON, D. *See* E. T. MOUL, 351.
Massachusetts fiddler crab, metabolism of, 245.
MATEYKO, G. M. Cytophysiology of ultracentrifuged normal and neoplastic frog kidney cells, 349.
Mating types in variety 9 of Tetrahymena, 344.
Maxillae of barnacles, 224.
MCCANN, F. V. *See* J. CERF, 337, 338.

McElroy, W. D. *See* E. N. Harvey, 347.
McMahon, P. *See* T. von Brand, 89.
Mealy bugs, cuticle of, 141.
Mechanism of osmoregulation in crab, 268.
Mediaster as host for polychaete commensal, 397.
Melanin formation in phenylthiourea-treated Hyla tadpoles, 160.
Melanin of mealy bug cuticle, 141.
Membrane potential changes in crab muscle fibers, 362.
Menkin, V., L. Menkin and R. S. Heilman. Studies on the accelerator cleavage factor recovered in homogenates of Arbacia ovaries, 350.
Menkin, V., L. Menkin and R. S. Heilman. Studies on the nature of the retarding cleavage factor in homogenates of sea urchin ovaries, 351.
Metabolic pathways in Arbacia eggs, 342.
Metabolic responses to temperature of 2,4-D-treated albino rats, 357.
Metabolism and ciliary activity of Mytilus gill, 335.
Metabolism in frozen and dried algae, 275.
Metabolism of fiddler crabs, 245.
Metabolism of fish islet tissue, 414.
Metabolism of glucose in marine invertebrates, 358.
Metabolism of homogenized frog embryos, 382.
Metabolism of Limulus gill cartilage, 331.
Metabolism of snails, 89.
Metabolism of strontium-90 and calcium-45 by fish, 442.
Metachromasy in protoplasm, 319.
Metamorphosis in phenylthiourea-treated tadpoles, 160.
Metcalf, C. *See* M. Spiegel, 355, 356.
Metridium, nematocyst toxin of, 296.
Metz, C. W. Interactions between chromosomes and cytoplasm during early embryonic development in Sciara, 323.
Microchemical analyses of Ciona blastomeres, 365.
Microcysts of Dictyostelium, 58.
Microrespirometer, use of in study of fish islet tissue, 414.
Mingoli, E. S. *See* A. L. Nagler, 331.
Miracidia of Allocreadium, 302.
Miracidia of Azygia, 488.
Mitochondria, rat, effects of gamma irradiation on, 198.
Mitosis, effects of nitrogen mustards on, 388.
Mitosis, effects of ovarian extracts on, 129.
Mitotic inhibition by dioxypurine derivatives, 339.
Modification of diurnal rhythm in Plethodon, 188.
Modifications of development in sand dollar, 480.
Mollusc, correlation of oxygen consumption of, with barometric pressure, 112.
Mollusc, starvation and desiccation of, 89.
Molluscan host of Allocreadium, 302.
Molluscan host of Azygia, 488.
Molnar, J. *See* L. Lorand, 323.
Molting of barnacles, 224.
Molting cycle of spiny lobster, 451.
Moos, C., and L. Lorand. Inorganic pyrophosphatase activity of glycerinated muscle, 330.
Moos, C. *See* L. Lorand, 323.
Mormoniella, genetic analysis of, 335.
Morphogenesis in Dictyostelium, 58.
Morphogenesis of frog embryos, 376, 382.
Morphology of Allocreadium, 302.
Morphology of annelid endoparasites, 170.
Morphology of Azygia, 488.
Morphology of Nereis nephridium, 407.
Moul, E. T., and D. Mason. Study of diatom populations on sand and mud flats in the Woods Hole area, 351.
Moulton, J. M. Sound production in spiny lobster, 286.
Mouthparts of barnacles, 224.
Mouthparts of endoparasitic annelids, 170.
Mucoprotein, role of in spiny lobster ecdysis, 451.
Muscle, effect of ions on response of, to cooling, 328.
Muscle, glycerinated, inorganic pyrophosphatase activity of, 330.
Muscle, glycerinated, relaxation in, 323.
Muscle, iodoacetate-poisoned, creatine phosphate and ATP breakdown in, 324.
Muscle, potassium depolarized, shortening of in electric fields, 349.
Myxamoebae, encystment in, 58.

NaCl, distribution of in lobster blood and urine, 207.
Nagler, A. L., E. S. Mingoli and B. D. Davis. Metabolic consequences of a genetic block between alpha-ketoglutarate and succinate in Escherichia, 331.
Nass, S. *See* P. R. Gross, 320, 327.
Nematocyst toxin of Metridium, 296.
Neoplasms, chemotherapy of, 388.
Neoplastic frog kidney cells, 349.
Nephridia of Phascolosoma, uptake of Chlormerodin by, 327.
Nephridial function in lobster, 207.
Nephridium of Nereis, morphology of, 407.
Nereis, breeding habits of, 49.
Nereis vexillosa, nephridium of, 407.

Nerve cell, effect of nervous system extracts on, 344.
Nerve impulse in lobster stretch receptor, 360.
Neural organization of puffer supramedullary neurons, 325.
Neuromuscular transmission in grasshopper, 338.
Neuromuscular transmission in Limulus, 347.
Neurosecretion in Uca, 426.
Nitrogen analyses of lobster urine, 207.
Nitrogen content of Metridium nematocyst toxin, 296.
Niu, M. C., and S. D. Douglas. The effect of varying concentrations of ribonucleic acid on the development of some marine embryos, 352.
Nolan, M. O. *See* T. von Brand, 89.
Notocirrus, morphology of, 170.
Notopygos, breeding habits of, 49.
Nuclear incorporation of thymidine in Euplotes, 322.
Nucleic acid content of Ciona blastomeres, 365.
Nucleoli, starfish, proteins of, 334.
Nuclide, metabolism of by Lebistes, 442.
Nutrition, relation of to growth in Campanularia, 233.
Nutrition, role of in testicular growth in sparrows, 254.

OBLIGATE commensals, 397.
Odum, E. P., E. J. Kuenzler and Sister M. X. Blunt. Uptake of P-32 in benthic algae in relation to primary productivity, 323.
Oliguria in lobster, 207.
Onuphids, endoparasites of, 170.
Oocytes of Fundulus, electron microscope studies of, 329.
Opsanus, studies on isolated islet tissue of, 414.
Osmolar measurements in lobster, 207.
Osmoregulatory organ of Nereis, 407.
Osmotic pressure in relation to toxicity of Metridium nematocyst toxin, 296.
Osmotic properties of hormone-containing granules of Uca, 426.
Osmotic regulation in crab, 268.
Osterhout, W. J. V. Production of permanent lesions in living protoplasm, 352.
Osterhout, W. J. V. Selective permeability in relation to movement of water into living cells, 353.
Ottoson, D. *See* J. F. Case, 360.
Ova, Chaetopterus, effects of nitrogen mustards on, 388.
Ova, marine, effects of ovarian extracts on division of, 129.
Ovarian extracts, antimitotic action of, 129.
Oxygen, effect of on luminescence of millipede, 120.
Oxygen consumption of algae, 275.
Oxygen consumption of organisms as correlated with barometric pressure, 112.
Oxygen consumption of potatoes, 103.
Oxygen consumption of snails, 89.
Oxygen uptake of fiddler crabs, 245.
Oxygen uptake of fish islet tissue, 414.
Oxygen uptake of homogenized frog embryos, 382.
Oxygen uptake of rat liver mitochondria, effects of gamma irradiation on, 198.
Oxygen uptake of Uca, effect of 2,4-D on, 357.
Oyster, correlation of oxygen consumption of, with barometric pressure, 112.
Oyster, injury-reaction in, 335.

PACE-maker of scorpion heart-beat, 135.
Pachygrapsus, osmoregulation in, 268.
Palamnaeus, cardiac physiology of, 135.
Pancreatic islet tissue of fish, 414.
Panulirus, molting cycle of, 451.
Panulirus, sound production in, 286.
Paper chromatography of Metridium nematocyst toxin, 296.
Para-amminohippurate, effect of on lobster excretion, 207.
Parasite, life-history of, 302.
Parasites of arabellids, 170.
Paratenic hosts of Azygia, 488.
Parpart, A. K., and J. Cagle. Contractility of the hyaline layer of Arbacia, 331.
Particulates, cellular, enzyme assay of, 365.
Particulates, cellular, irradiation of, 198.
Patiria as host for commensal polychaete, 397.
Pearl, W. *See* P. R. Gross, 320.
Pérez-González, M. D. Evidence for hormone-containing granules in sinus glands of the fiddler crab, Uca, 426.
Permeability of crab integument, 268.
Permeability of lobster gills and exoskeleton, 207.
Permeability of Nitella, in relation to injury, 352, 353.
Person, P., and A. Fine. Observations on the histology and oxidative metabolism of Limulus gill cartilage, 331.
Pettibone, M. H. Endoparasitic polychaetous annelids of the family Arabellidae with descriptions of new species, 170.
pH, effect of on metabolism of fish islet tissue, 414.
Pharmacology of scorpion heart-beat, 135.
Phenol red, effect of on lobster excretion, 207.
Phenylthiourea treatment of tadpoles, 160.

PHILLIPS, J. H., JR., AND D. P. ABBOTT. Isolation and assay of the nematocyst toxin of Metridium, 296.
PHILPOTT, D. E. *See* P. R. GROSS, 327; S. P. GIBBS, 346.
Phlorizin, effect of on lobster excretion, 207.
Phosphatase activity of Ciona blastomeres, 365.
Phosphate, effect of on lobster excretion, 207.
Phosphate ion, effect of on fish islet tissue metabolism, 414.
Phosphoarginine and arginine phosphokinase from lobster, 360.
Phosphorus balance of Rana gastrulae, 376.
Phosphorylation in rat liver mitochondria, effects of gamma irradiation on, 198.
Photoperiod in relation to testicular growth in sparrow, 254.
Photosynthesis in Arctic Fucus, 275.
Physiological variations in fiddler crabs, 245.
Physiology, cardiac, of scorpion, 135.
Physiology of desiccation of snails, 89.
Physostigmine, effect of on heart-beat of scorpion, 135.
Pigment extracts from Asterias, 353.
Pigmentation in phenylthiourea-treated Hyla tadpoles, 160.
Pisaster as host for polychaete commensal, 397.
Pisidium as host for Allocreadium, 302.
Planorbid snails, starvation and desiccation of, 89.
Plasma proteins, effects of on lobster excretion, 207.
Plasma proteins and cells, phylogenesis of, 362, 363.
Platyhelminth, life-history of, 302, 488.
Platynereis, breeding habits of, 49.
Plethodon, diurnal activity rhythm in, 188.
Podarke, commensalism of, 397.
Polychaetes, breeding habits of, 49.
Polychaetes, commensal, behavior of, 397.
Polychaetes, endoparasitic, 170.
Polymerization of blood proteins, 320.
Population differences as a factor in commensalism, 397.
Population differences in metabolism of fiddler crabs, 245.
Post-ecdysial changes in lobster hepatopancreas, 451.
Potassium concentrations of crab blood, 268.
Potassium contracture in frog twitch muscles, 329.
Potatoes, fluctuations in oxygen consumption of, as compared with background radiation, 103.
Potential, membrane, and muscle contraction, 317.
Potential changes and ion movements in frog muscle, 317.
Pressure, barometric, as correlated with biological activity, 112.
Pressure effects on Arbacia eggs, 348.
Production of sound in spiny lobster, 286.
Productivity of algae, as studied with P-32, 323.
Protease digestion of Ciona chorion, 365.
Protection effects against gamma irradiation of rat liver mitochondria, 198.
Protochordate blastomeres, chemical analyses of, 365.
PROVASOLI, L. Effect of plant hormones on sea weeds, 321.
Pseudococcidae, cuticle of, 141.
Pteraster as host for polychaete commensals, 397.
Puerto Rican annelids, breeding habits of, 49.

QUAHOG, correlation of oxygen consumption of, with barometric pressure, 112.
Quantitative examination of testicular growth in sparrow, 254.

RNA content of Ciona blastomeres, 365.
Radiation, background, as compared with oxygen consumption of potatoes, 103.
Radioactive alloxan, uptake of by toadfish tissues, 348.
Radioiodine, binding of, in tadpoles, 160.
Radiostrontium and radiocalcium, metabolism of by Lebistes, 442.
RALPH, C. L. A diurnal activity rhythm in Plethodon and its modification by an influence having a lunar frequency, 188.
Rana embryos, homogenized, respiration of, 382.
Rana gastrulae, phosphorus balance of, 376.
RAPER, K. B. *See* J. C. BLASKOVICS, 58.
Rat, correlation of oxygen consumption of, with barometric pressure, 112.
Rat mitochondria, effects of gamma irradiation on, 198.
Rate of growth in Campanularia, 233.
Rate of oxygen consumption of fiddler crabs, 245.
RAY, F. L. *See* J. R. GREGG, 382.
Reaggregation of dissociated sponge cells, 356.
Reconstruction of Nereis nephridium, 407.
REBHUN, L. I. Vital staining of Spisula by methylene blue, 353.
Rediae of Allocreadium, 302.
Rediae of Azygia, 488.
Re-fertilization of Saccoglossus eggs, 341.
Reproduction of polychaetes, 49.
Respiration in frozen and dried algae, 275.

Respiration of fiddler crabs, 245.
Respiration of fish islet tissue, 414.
Respiration of homogenized frog embryos, 382.
Respiration of organisms as correlated with barometric pressure, 112.
Respiration of potatoes, 103.
Respiration of snails, 89.
Retardation of development of Rana embryos, 382.
Rhythm, diurnal activity, in salamander, 188.
Ribonuclease in rat liver, 322.
Ribonuclease system in marine forms, 332.
Ribonucleic acid, effect of on developing embryos, 352.
Ribonucleic acid content of Ciona blastomeres, 365.
RIDGWAY, G. J. *See* J. E. CUSHING, 343.
RIESER, P. Electrophoretic mobility studies on irradiated fibrinogen, 319.
ROBSON, H. H. *See* H. T. YOST, JR., 198.
ROCKSTEIN, M., AND M. RUBENSTEIN. The biochemical basis for positive photokinesis of Asterias, 353.
ROSENTHAL, H. L. The metabolism of strontium-90 and calcium-45 by Lebistes, 442.
ROSS, S. *See* R. GUTTMAN, 328.
ROTH, J. S. Some observations on the ribonuclease system in rat liver, 322.
ROTH, J. S., AND D. BACHMURSKI. Studies on the distribution and properties of the ribonuclease system in marine forms, 332.
RUBENSTEIN, M. *See* M. ROCKSTEIN, 353.
RULON, O. Developmental modifications in the sand dollar, 480.
RUTMAN, R. J. *See* L. V. HEILBRUNN, 129.

SABELLA, breeding habits of, 49.
Salamander, correlation of oxygen consumption of, with barometric pressure, 112.
Salamander, locomotor activity rhythm in, 188.
Salinity, effect of on respiration of frozen and dried algae, 275.
Salinity preferences of crab, 268.
Sand dollar, developmental modifications in, 480.
SCHINSKE, R. A. *See* G. C. STEPHENS, 356.
Schooling behavior in Menidia, 354.
SCHUEL, H. The initiation and inhibition of cleavage in the Chaetopterus egg by ethyl urethane, 354.
SCHULMAN, M. P. Incorporation of labelled iron into hemerythrin, 361.
SCHULMAN, M. P., AND G. A. LAMB. Heme synthesis in peripheral blood of marine fishes, 361.
Scorpion, cardiac physiology of, 135.
SCOTT, D. B. M. The effect of sugar on gastrulation of Chaetopterus embryos, 332.
SCOTT, D. M. Sequence of changes in nucleic acids in synchronized cultures of Escherichia, 321.
SEEMAN, P. *See* C. R. ELIOT, 344.
Segregation, cytoplasmic, in Ciona, 365.
Selenite, effects of on sand dollar development, 480.
Semi-terrestrial crab, osmoregulation in, 268.
Serum addition, effect of on fish islet tissue metabolism, 414.
Sexual reproduction of polychaetes, 49.
SHAW, E. Preliminary studies on the ontogeny of schooling behavior in the silversides, Menidia, 354.
Shell growth in Balanus, 224.
SHRINER, J. *See* F. A. BROWN, JR., 103.
SIGER, A. *See* F. D. CARLSON, 324.
Sinus glands of Uca, hormone-containing granules in, 426.
Size increase in Balanus, 224.
Skeletal development of sand dollar embryos, 480.
Skeletal development of sea urchin embryos, 346.
Skin pigmentation in phenylthiourea-treated tadpoles, 160.
Slime mold, encystment in, 58.
Snail, starvation and desiccation of, 89.
Snail, susceptibility of to Metridium nematocyst toxins, 296.
Snails as intermediate hosts of Azygia, 488.
Sodium concentrations of crab blood, 268.
Sodium selenite, effects of on sand dollar development, 480.
Sol-gel transformations in cytoplasm, 320.
Solanus, oxygen consumption of, 103.
Solar-day fluctuations in cosmic radiation, 103.
Sorocarp formation in Dictyostelium, 58.
Sound production in spiny lobster, 286.
Sparrow, white-crowned, testicular growth in, 254.
Species of polychaete endoparasites, 170.
Specificity of commensalism, 397.
SPEIDEL, C. C. X-ray effects on Tetrahymena, 355.
Sperm entry, lytic activity of sperm during, 316.
Sperm entry in Saccoglossus, 341.
SPIEGEL, M., AND C. METCALF. Enzymatic dissociation of sponge cells, 355.
SPIEGEL, M., AND C. METCALF. The reaggregation of Microciona cells in culture media, 356.
SPIEGEL, M., AND C. METCALF. Viability of dissociated frozen-thawed sponge cells, 356.

Spiny lobster, molting cycle of, 451.
Spiny lobster, sound production in, 286.
Spirobranchus, breeding habits of, 49.
Spisula eggs, effects of ovarian extracts on, 129.
Spore-formation in Dictyostelium, 58.
Sporocysts of Allocreadium, 302.
Sporocysts of Azygia, 488.
Stages of encystment in Dictyostelium, 58.
Starfish hosts of polychaete commensals, 397.
Starvation of snail, 89.
Stem growth in Campanularia, 233.
STEPHENS, G. C., AND R. A. SCHINSKE. Uptake of amino acids from sea water by ciliary-mucoid filter feeding animals, 356.
STEPHENSON, W. K. The effects of metabolic inhibitors on ion distribution and membrane potential in muscle fibers of the green crab, Carcinides, 362.
STEPHENSON, W. K. Membrane potential changes and ion movements in frog muscle, 317.
Stridulatory mechanism of spiny lobster, 286.
STROHMAN, R. C. Studies on the interactions of the bound nucleotide of actin, 333.
Strontium-90, metabolism of by Lebistes, 442.
Structure of mealy bug cuticle, 141.
Studies on irradiation of cellular particulates, 198.
Substrate, effect of on encystment of Dictyostelium, 58.
Succinic dehydrogenase activity of Ciona blastomeres, 365.
SUDAK, F. N., AND C. L. CLAFF. The effect of 2,4-D on oxygen consumption in Uca, 357.
SUDAK, F. N., C. L. CLAFF AND M. H. CANTOR. Metabolic responses of albino rats treated with 2,4-D to changes in ambient temperature, 357.
SUDAK, F. N. *See* C. L. CLAFF, 326.
Sugar, role of in lobster excretion, 207.
Sulfate, effect of on lobster excretion, 207.
Sulfobromophthalein, effect of on lobster excretion, 207.
Synergistic action of chemical agents on sand dollar development, 480.
Systematics of trematodes, 302, 488.

TADPOLES, phenylthiourea treatment of, 160.
Taste receptors of rat, 347.
Taxonomy of Azygia, 488.
Taxonomy of endoparasitic annelids, 170.
Taxonomy of trematodes, 302, 488.
Teeth, accumulation of radioiodine in, in tadpoles, 160.
Teleost, studies on isolated islet tissue of, 414.
Temperature, effect of on encystment of Dictyostelium, 58.
Temperature, effect of on hormone-containing granules of Uca, 426.
Temperature, effect of on luminescence of millipede, 120.
Temperature, effect of on post x-irradiation effects in Tetrahymena, 345.
Temperature, role of in metabolism of fiddler crabs, 245.
Temperature, role of in testicular growth of sparrows, 254.
Temperature in relation to metabolism of 2,4-D-treated albino rats, 357.
Terminal growth in Campanularia, 233.
Testicular growth in sparrow, 254.
TEWINKEL, L. E. Expansion of the preplacental yolk-sac in Mustelus, 358.
Thelepus, breeding habits of, 49.
THIES, R. E. Electrical recording in the living squid, 333.
Thiol groups of enzyme, importance of in modifications of sand dollar development, 480.
Thymus, effects of phenylthiourea-treatment on, in tadpoles, 160.
Thyroid accumulation of radioiodine in tadpoles, 160.
Tissue-accumulation of isotopes by fish, 442.
Tissue culture of marine invertebrate cells, 334.
Tissue transplantation in Pecten, 327.
Toadfish, studies on isolated islet tissue of, 414.
Tolerance to cold of fiddler crabs, 245.
Tonicity, effects of on fish islet tissue metabolism, 414.
TOSTESON, T. R., S. A. FERGUSON and L. V. HEILBRUNN. Further studies of the antimitotic and carcinostatic action of ovarian extracts, 318.
TOSTESON, T. R. *See* L. V. HEILBRUNN, 129.
Toxin, nematocyst, of Metridium, 296.
Trace metals, effects of on fish islet tissue metabolism, 414.
TRAVIS, D. F. The molting cycle of the spiny lobster, Panulirus. IV., 451.
Trematode, life-history of, 302, 488.
Triturus, correlation of oxygen consumption of, with barometric pressure, 112.
TROLL, W. Glucuronidase and sulfatase of molluscs, 334.
Tumor regression, effects of ovarian extracts on, 129.
Tunicate blastomeres, chemical analyses of, 365.
Tyrosine iodination in phenylthiourea-treated tadpoles, 160.

UBELL, E. *See* C. R. ELIOT, 344.
Uca, correlation of oxygen consumption of, with barometric pressure, 112.
Uca, hormone-containing granules of, 426.
Uca, respiratory metabolism of, 245.
Ultracentrifuged frog kidney cells, 349.
Ulva, freezing and drying in, 275.
Uptake, oxygen, of fish islet tissue, 414.
Uptake of isotopes by fish, 442.
Urethane, effects of on Chaetopterus eggs, 388.
Uricase inactivation by urea, 320.
Urinary output of lobster, 207.

VEGETATIVE stages of Dictyostelium, 58.
Veliger larvae, method for preparing whole-mounts of, 340.
Venus, correlation of oxygen consumption of, with barometric pressure, 112.
Vernal testicular development in sparrow, 254.
VILLEE, C. A., J. LORING AND F. WELLINGTON. The hexose monophosphate shunt in marine invertebrates, 358.
VINCENT, W. S. Proteins of starfish nucleoli, 334.

WALTERS, C. P. *See* R. K. CRANE, 343.
WARWICK, A., AND F. B. BANG. Survival of marine invertebrate cells in tissue culture, 334.
Water loss in algae, 275.
Wax glands of mealy bugs, 141.
WEBB, H. M. *See* F. A. BROWN, JR., 103, 112.
Weight, body, of snails, 89.
WELLINGTON, F. *See* C. A. VILLEE, 358.
West Indian spiny lobster, sound production in, 286.
White-crowned sparrow, testicular growth in, 254.
WHITING, P. W. Method of analysis of a "gene" in Mormoniella, 335.
WICHTERMAN, R. X-irradiation of the giant multinucleate ameba, Chaos, 359.
WILBER, C. G. Some physiological characteristics of the fish heart, 359.
WILSON, A. C. *See* D. S. FARNER, 254.
WILSON, T. H. In vitro studies on intestinal absorption of fish, 362.
WILSON, W. L. *See* L. V. HEILBRUNN, 129, 318, 388.
WOODS, K. R., AND R. L. ENGLE, JR. Phylogenesis of plasma proteins and plasma cells. I., 362.
WOODS, K. R. *See* R. L. ENGLE, JR., 363.
Woods Hole fiddler crabs, metabolism of, 245.
WOOTTON, D. M. Studies on the life-history of Allocreadium, 302.
WOOTTON, D. M. Notes on the life-cycle of Azygia, 488.
Worm, annelid, morphology of nephridium of, 407.
Worm, flat, life-history of, 302, 488.
Worm eggs, effects of nitrogen mustards on, 388.
Worms, annelid, breeding habits of, 49.
Worms, annelid commensal, behavior of, 397.
Worms, endoparasites of, 170.
WYTTENBACH, C. *See* S. CROWELL, 233.

X-IRRADIATION of ameba, 359.
X-irradiation of conjugating Tetrahymena, 345.
X-irradiation of Tillina, 336.
X-irradiation of vegetative Tetrahymena, 345, 355.

YOLK-sac, expansion of, in Mustelus, 358.
YOST, H. T., JR., AND H. H. ROBSON. Studies on the effects of irradiation of cellular particulates. II., 198.

ZINC chloride, effects of on sand dollar development, 480.
Zonotrichia, testicular growth in, 254.